

CHAPTER 3

WATER QUALITY ANALYSIS: CHEMICAL PARAMETER

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WATER QUALITY ANALYSIS FOR CHEMICAL PARAMETER

Water quality analysis is to measure the required parameters of water, following standard methods, to check whether they are following the Malaysian standard [1]. The parameters of water quality are divided into physical, chemical and biological properties as shown in Table 3.1. The water quality under chemical parameters that will be discussed in this subtopic is DO, BOD, COD, ammoniacal nitrogen, oil/grease and heavy metal analysis.

Table 3.1: Chemical, physical and biological properties of water quality parameter

Properties	Parameter	Unit
Chemical	Ammoniacal Nitrogen	mg/L
Chemical	BOD ₅	mg/L
Chemical	COD	mg/L
Chemical	DO	mg/L
Physical	pH	-
Physical	Electrical Conductivity	mhos/com
Physical	Salinity, ppt	ppt
Physical	Total Suspended Solids	mg/L
Physical	Temperature	°C
Physical	Turbidity	NTU
Biological	Fecal Coliforms	counts/100 mL
Biological	Total Coliforms	counts/100 mL
Chemical	Zinc	mg/L
Chemical	Cadmium	mg/L
Chemical	Lead	mg/L

Chemical	Copper	mg/L
Chemical	Nitrite (NO ₂), Nitrate (NO ₃)	mg/L
Chemical	Phosphorus	mg/L

MEASURING DISSOLVED OXYGEN

There are three methods [2] available for measuring dissolved oxygen (DO) concentrations in the water body namely Sensor Technology, Calorimetric and Titrimetric. The methods are shown in Figure 3.1.

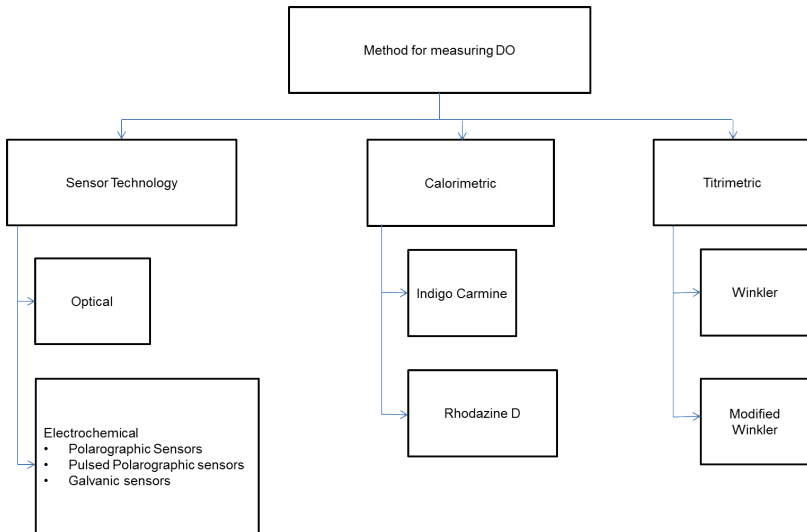


Figure 3.1: Method for measuring the dissolved oxygen

Dissolved oxygen refers to the level of free, non-compound oxygen that is present in the water body [3]. It is one of the most important parameters when assessing water quality because of its influence on the organisms living within a body of water. The DO concentrations are affected by temperature, pressure and salinity; hence this parameter should be accounted for as well [4]. A DO level that is too high or too low can harm